

What is claimed is:

1. A closed substrate platform comprising:
a container comprising an area for sample analysis and a microfluidic analysis platform,
the container comprising (i) at least one inlet for the introduction of fluid to the sample analysis area and (ii) an outlet for removal of fluid from the sample analysis area;
a vent for expulsion of air from the container.

2. The substrate platform of claim 1, wherein the container comprises at least two parts adhered to each other, wherein at the interface of the two parts the microfluidic analysis platform is defined.

3. The substrate platform of claim 1 or 2, wherein a first substrate platform part in a planar surface thereof has depressed a defined channel system and a second substrate platform part is a planar substrate adhered to the first part planar surface.

4. The substrate platform of claim 2 or 3, wherein the two parts are adhered together with an adhesive.

5. The substrate platform of any one of claims 2 through 4, wherein the planar substrate is a transparent plastic member.

6. The substrate platform of claim 1, wherein the thickness thereof is 1.5 mm or less.

7. The substrate platform of claim 6, wherein the thickness thereof is about 1 mm.

8. The substrate platform of claim 1 wherein the sample analysis area comprises a plurality of biomolecules.

9. The substrate platform of any one of claims 1 through 8 wherein the microfluidic analysis platform comprises the sample analysis area.

10. The substrate platform of any one of claims 1 through 9 wherein the microfluidic analysis platform comprising a non-linear meandering flow path.

11. The substrate platform of any one of claims 1 through 10 wherein the substrate platform comprises a plurality of inlets.

12. The substrate platform of any one of claims 1 through 11 wherein the substrate platform comprises two inlets.

13. The substrate platform of any one of claims 1 through 12 wherein the inlet comprises an adapter to receive a fluid delivery device.

14. The substrate platform of claim 13 wherein the adapter is conical shaped.

15. The substrate platform of claim 13 or 14 wherein the adapter provides a substantially fluid impervious engagement of the fluid delivery device.

16. The substrate platform of any one of claims 13 through 15 wherein the fluid delivery device is a pipette or syringe.

17. The substrate platform of any one of claims 1 through 15 wherein delivery of fluid into the substrate provides force for fluid flow through the substrate platform.

18. The substrate platform of any one of claims 1 through 17 further comprising a fluid flow modulator.

19. The substrate platform of claim 18 wherein the flow modulator is positioned in the fluid flow path between an inlet and sample analysis area.

20. The substrate platform of claim 18 or 19 wherein the flow modulator reduces flow rate of fluid delivered through an inlet.

21. The substrate platform of claim 18 through 20 wherein the flow modulator comprises a capillary channel of reduced cross-sectional area relative to the flow path prior to the flow modulator.

22. The substrate platform of any one of claims 1 through 21 wherein a buffer area is after the sample analysis area.

23. The substrate of any one of claims 1 through 22 wherein a waste area is after the sample analysis area.

24. The substrate platform of claim 22 or 23 wherein a waste area is after the buffer area.

25. The substrate platform of claim 23 or 24 wherein the waste area comprises the vent.

26. The substrate platform of any one of claims 1 through 25 wherein the sample analysis area comprises one or more biomolecules.

27. The substrate platform of any one of claim 1 through 26 wherein the sample analysis area comprises one or more nucleic acid compounds or peptide compounds.

28. A closed substrate platform for analysis of biomolecules comprising:
a container comprising an area for sample analysis and a microfluidic analysis system comprising a non-linear flow path,
the container comprising (i) at least one inlet for the introduction of fluid to the sample analysis area and (ii) an outlet for removal of fluid from the sample analysis area;
a vent for expulsion of air from the container,
the sample analysis area comprising one or more biomolecules.

29. The substrate platform of claim 28 wherein the substrate platform comprises a plurality of inlets.

30. The substrate platform of claim 28 or 29 wherein the substrate platform comprises a fluid flow modulator between an inlet and sample analysis area.

31. The substrate platform of any one of claims 28 through 30 wherein the flow modulator reduces flow rate of fluid delivered through an inlet.

32. The substrate platform of any one of claims 28 through 31 wherein a buffer area is after the sample analysis area, and a waste area after the buffer area, the waste area comprising the vent.

33. The substrate platform of any one of claims 28 through 32 wherein the sample analysis area comprises one or more nucleic acid compounds or peptide compounds.

34. A closed substrate platform comprising:
a container comprising an area for sample analysis and a microfluidic analysis platform,
the container comprising (i) at least one inlet for the introduction of fluid to the sample analysis area and (ii) an outlet for removal of fluid from the sample analysis area,
the container comprising at least two parts adhered to each other, wherein the two parts define the microfluidic analysis platform;
a vent for expulsion of air from the container.

35. The substrate platform of claim 34, wherein a first substrate platform part in a planar surface thereof has depressed a defined channel system and a second substrate platform part is a planar substrate adhered to the first part planar surface.

36. The substrate platform of claim 34 or 35 wherein the two parts are adhered together with an adhesive.

37. The substrate platform of any one of claims 34 through 36 wherein the planar substrate is a transparent plastic member.

38. The substrate platform of any one of claims 34 through 37 wherein the microfluidic analysis platform comprising a non-linear meandering flow path.

39. The substrate platform of any one of claims 34 through 38 wherein the sample analysis area comprises one or more biomolecules.

40. The substrate platform of any one of claim 34 through 38 wherein the sample analysis area comprises one or more nucleic acid compounds or peptide compounds.

41. Use of the substrate platform of any one of claims 1 through 40 for sample analysis.

42. Use of the substrate platform of any one of claims 1 through 40 for detecting DNA sequence variation, DNA sequencing, SNP analysis, genotyping, deletion analysis, gene expression and the like.

43. A method for sample analysis comprising applying a sample to the substrate platform of any one of claims 1 through 40, and evaluating the sample.

44. The method of claim 43 wherein the sample is a fluid.

45. The method of claim 43 or 44 wherein the sample is delivered to the substrate platform through a pipette or syringe.

46. The method of any one of claims 43 through 45 wherein delivery of the sample into the substrate platform provides force sufficient for flow of the sample through the platform.

47. A method for providing a closed substrate platform suitable for analysis of biomolecules, comprising:

providing an analysis platform part having a defined channel system depressed in a planar surface thereof, to provide an analysis sample flow path; and

applying a planar substrate over the channel system to provide a closed sample flow path.

48. The method of claim 47 wherein the planar substrate is a plastic member.

49. The method of claim 47 or 48 wherein the planar substrate is laminated to the top surface of the analysis substrate platform.

50. The method of any one of claims 47 through 49 wherein the sample flow path is non-linear.